

## **REMARKS**

Claims 1, 2, and 6 are pending in the application. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 102**

Claims 1, 2 and 6 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yamashita (U.S. Pat. No. 5,554,871). This rejection is respectfully traversed.

With respect to claim 1, Yamashita and Yamazaki fail to show, teach, or suggest a gate insulating film that includes nitrogen ( $N^+$ ) ions and that is provided on a semiconductor layer, and a nitrogen diffusion layer formed under the gate insulating film from the  $N^+$  ions in the gate insulating film.

For anticipation to be present under 35 U.S.C §102(b), there must be no difference between the claimed invention and the reference disclosure as viewed by one skilled in the field of the invention. Scripps Clinic & Res. Found. V. Genentech, Inc., 18 USPQ.2d 1001 (Fed. Cir. 1991). All of the limitations of the claim must be inherent or expressly disclosed and must be arranged as in the claim. Constant v. Advanced Micro-Devices, Inc., 7 USPQ.2d 1057 (Fed. Cir. 1988). Here, the cited prior art references fail to disclose the limitation of a nitrogen diffusion layer formed under the gate insulating film from  $N^+$  ions in the gate insulating film.

As shown in an exemplary embodiment in FIG. 4, a gate insulating film 23 is formed from a silicon oxynitride film ( $SiON$ ).  $N^+$  ions in the gate insulating film 23 are diffused into a shallow region of a substrate 1. Consequently, the diffused  $N^+$  ions from

the gate insulating film form a nitrogen diffusion layer 13. In other words, the nitrogen diffusion layer 13 is formed under the gate insulating film 23 from N<sup>+</sup> ions in the gate insulating film 23.

In contrast, Yamashita and Yamazaki fail to disclose this structure. For example, as shown in FIG. 46 of Yamashita, N<sup>+</sup> ions are implanted. Applicants respectfully note that FIG. 46 and the corresponding description appear to be absent of any teaching or suggestion of a nitrogen diffusion layer formed under the alleged gate insulating film 7. More specifically, Yamashita fails to show, teach or suggest a nitrogen diffusion layer formed from N<sup>+</sup> ions in the gate insulating film 23.

Similarly, Yamazaki appears to be absent of any teaching or suggestion of this limitation. For example, the Examiner alleges that FIG. 11A of Yamazaki discloses a diffusion suppression impurity (e.g. a diffusion suppression impurity 104 as shown in FIG. 1B). Applicants respectfully note that the alleged diffusion suppression impurity does not appear to be a nitrogen diffusion layer. Applicants respectfully note that Yamazaki appears to be absent of any teaching or suggestion of a nitrogen diffusion layer formed from N<sup>+</sup> ions in the gate insulating film 23.

Applicants respectfully submit that claim 1, as well as its corresponding dependent claims, should be allowable for at least the above reasons. Claim 6 should be allowable for at least similar reasons.

## CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: Oct 10, 2006

By: 

G. Gregory Schirley  
Reg. No. 27,382

Bryant E. Wade  
Reg. No. 40,344

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

GGG/BEW/DMA